

Appl. No. 10/790,394
Response to Office Action mailed June 27, 2006

Atty Dkt. No. 114951-006

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REMARKS

The non-final Office Action was issued on pending claims 1-22. Claims 1, 2, 6, 8, 9 and 13 were rejected and claims 3-5, 7, 10-12 and 14-22 were withdrawn from consideration. In this Response, no claims have been amended, claims 16-22 have been cancelled and claims 23-26 have been added. Thus, claims 1-15 and 23-26 are pending in the application and claims 1, 2, 6, 8, 9, 13 and 23-26 are under consideration.

Applicants invite the Examiner to call Applicants' Representative to discuss any issues with this application.

AUG 28 2006

Withdrawn Claims

In the Office Action at page 3, claims 3-5, 7, 10-12 and 14-22 were withdrawn from further consideration as being drawn to a non-elected invention.

Claims 16-22 have been cancelled as they are included in a pending divisional application, serial no. 11/477,739.

Claim Rejections – 35 USC §103(a)

In the Office Action at page 2, claims 1, 6, 8 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over either Boyer (US 6,390,234) or Sharp (US 2003/0173150) in view of either Kavesh et al. (US 4,897,902) or McCall et al. (US 4,604,315). At pages 2 and 3 of the Office Action, claims 2 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over either Boyer or Sharp and either Kavesh et al. or McCall et al. and further in view of Piper (US 4,746,769), Chang et al. (unknown) or Silverberg (US 6,085,800). Applicants respectfully disagree.

One example of Applicants' invention, as claimed in claim 1, is shown in Figs. 1-3. A lanyard 10 has a load-supporting outer sheath 14 and a heat shrunken elongation member 12 extending along an inside of the outer sheath 14. The lanyard 10 has first and second spaced apart connection locations 16, 16 at which the elongation member 12 is secured to the load-

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supporting outer sheath 14. The elongation member 12 has an un-stretched heat shrunken length between the first and second connection locations 16, 16 substantially shorter than a length of the load-supporting outer sheath 14 between the first and second connection locations 16, 16. The reference numbers inserted into the claim text are for reference purposes and are not intended to limit the claims.

Initially, Applicants point out that claim 1 calls for "wherein, the elongation member has an un-stretched heat shrunken length between the first and second connection locations substantially shorter than a length of the load-supporting outer sheath between the first and second connection locations." (Emphasis supplied). The Office Action does not identify that claimed structure in the prior art. Indeed, Sharp and Boyer simply do not provide a motivation, suggestion or incentive to include heat shrinkable yarns in the above-quoted structure as claimed. Kavesh et al. and McCall et al. also do not provide a motivation, suggestion or incentive to include heat shrinkable yarns in the above-quoted structure as claimed. Merely because Kavesh et al. and McCall et al. have heat shrinkable yarns does not mean that it is obvious to use the heat shrinkable yarns in the structure as claimed.

The Office Action asserts the "superior properties" of the heat-shrunken yarns of Kavesh et al. and McCall et al. provide a basis for the obviousness rejection. However, the heat shrinkable yarns of Kavesh et al. and McCall et al. are not suitable for use in safety lanyards and harnesses. The Kavesh et al. yarns shrink only 1% - 10% and preferably 2% - 5%. See Kavesh et al. column 4, lines 33-40. Such a small amount of shrinkage for a safety lanyard would not allow for sufficient elongation during use of the safety lanyard, for example when stopping a person's fall. As to McCall et al., the heat shrunk yarns have good elasticity and recovery in all directions. See McCall et al. at column 2, lines 27-29. For example, the McCall et al. heat shrunk yarns can have about 90% recovery in the warp direction and about 70% recovery in the weft direction. See McCall et al. at column 4, lines 14-19. Such highly recoverable heat shrunk yarns would not be suitable for a safety lanyard because the strap may be unsafely reused. For example, see Sharp paragraph [0018].

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Sharp in view of Kavesh et al. or McCall et al.

Turning to Sharp, Applicants submit it would not be obvious to combine Sharp with either of Kavesh et al. or McCall et al. as asserted in the Office Action. Sharp pertains to a comfortable safety harness having straps 12. The Sharp straps 12 have an outer tubular sheath 14 of tubular elastic material of a relatively low strength. The low strength elastic outer sheath 14 surrounds an inner strap 16 of ordinary high strength safety strap. Sharp uses the low strength elastic outer sheath 14 to contract and compress the inner safety strap 16 longitudinally. See Sharp Paragraph [0016]. The Office Action asserts "It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the elongation members of either Boyer or Sharp to be heat-shrunken, [sic] as taught by either Kavesh or McCall." The Office Action does not clearly identify whether the Sharp low strength elastic outer sheath 14 or the high strength inner safety strap 16 is regarded as the "elongation members."

If the Office Action regards the Sharp high strength inner safety strap 16 as the "elongation members," then Applicants submit it would not be obvious to replace the high strength inner safety strap 16 with heat shrunken elongation members. Sharp contracts and compresses the straps 12 by stretching the low strength elastic outer sheath 14 prior to attachment to the inner safety strap 16 and then allowing the stretched elastic outer sheath 14 to contract. If the Sharp inner safety strap 16 was also heat shrunk then the strap 12 would be excessively further contracted. Nowhere does Sharp suggest that both the high strength inner safety strap 16 and the low strength elastic outer sheath 14 both contract and compress the strap 12.

If the Office Action regards the Sharp low strength elastic outer sheath 14 as the "elongation members," then Applicants submit the modified Sharp safety strap 12 does not have the structure of Applicants' invention as claimed in claim 1. Claim 1 calls for the heat shrunken elongation members to extend along the inside of the outer sheath. Conversely, the modified Sharp safety strap would have the heat shrunk elongation members as the outer sheath, not inside of the outer sheath.

Furthermore, neither of the Kavesh et al. and the McCall et al. heat shrinkable yarns are suitable for use to contract and compress the Sharp strap 12. The Kavesh et al. yarns shrink only 1% - 10% and preferably 2% - 5%. See Kavesh et al. column 4, lines 33-40. Such a small

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amount of contraction and compression for the Sharp safety strap would not allow for sufficient elongation during use of the safety strap, for example when stopping a person's fall. As to McCall et al., the heat shrunk yarns have good elasticity and recovery in all directions. See McCall et al. at column 2, lines 27-29. For example, the McCall et al. heat shrunk yarns can have about 90% recovery in the warp direction and about 70% recovery in the weft direction. See McCall et al. at column 4, lines 14-19. Such highly recoverable heat shrunk yarns would not be suitable for the Sharp safety strap because the strap may be unsafely reused. See Sharp paragraph [0018].

Boyer in view of Kavesh et al. or McCall et al.

Turning to Boyer, Applicants submit it would not be obvious to combine Boyer with either of Kavesh et al. or McCall et al. as asserted in the Office Action. Boyer pertains to a shock absorbing safety harness. Referring to Figs. 4 and 5, the Boyer safety harness has a shock-absorbing lanyard 14 having a shock-absorbing band 40. The shock-absorbing band 40 has a flexible, deformable non-stretchable tubular sleeve 42 and a non-resilient stretchable insert 44. See Boyer at column 3, lines 20-30. The Office Action does not clearly identify whether the Boyer non-stretchable tubular sleeve 42 or the non-resilient stretchable insert 44 is regarded as the "elongation members."

If the Office Action regards the Boyer non-resilient stretchable insert 44 as the "elongation members," then Applicants submit it would not be obvious to replace the non-resilient stretchable insert 44 with heat shrunken elongation members. Boyer gathers the non-stretchable tubular sleeve 42 to a shorter effective length and then attaches the gathered non-stretchable tubular sleeve 42 to the resilient stretchable insert 44. See Boyer at column 3, lines 25-30. If the Boyer inner resilient stretchable insert 44 was also heat shrunk then the lanyard 14 would be excessively further gathered. When the lanyard 14 stretches during use to stop a person's fall, the non-gathered state of the sleeve 42 would not be equal to the maximum stretched length of the insert 44 because of the excessive gathering of sleeve 42 (gather plus heat shrink).

If the Office Action regards the Boyer non-stretchable tubular sleeve 42 as the "elongation members," then Applicants submit the modified Boyer shock-absorbing lanyard 14

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does not have the structure of Applicants' invention as claimed in claim 1. Claim 1 calls for the heat shrunken elongation members to extend along the inside of the outer sheath. Conversely, the modified Boyer shock-absorbing lanyard 14 would have the heat shrunk elongation members as the outer tubular sleeve, not inside of the outer sheath. Furthermore, the modified Boyer lanyard 14 would not be functional for its intended purpose because both the outer tubular sleeve 42 and the insert 44 would be stretchable.

Even further, neither of the Kavesh et al. and the McCall et al. heat shrinkable yarns are suitable for use as the non-resilient stretchable insert 44. The Kavesh et al. yarns shrink only 1% - 10% and preferably 2% - 5%. See Kavesh et al. column 4, lines 33-40. Such a small amount of contraction and compression for the Boyer shock-absorbing lanyard 14 would not allow for sufficient elongation during use of the lanyard, for example when stopping a person's fall. As to McCall et al., the heat shrunk yarns have good elasticity and recovery in all directions. See McCall et al. at column 2, lines 27-29. For example, the McCall et al. heat shrunk yarns can have about 90% recovery in the warp direction and about 70% recovery in the weft direction. See McCall et al. at column 4, lines 14-19. Such highly recoverable heat shrunk yarns would not be suitable for the Boyer shock-absorbing lanyard 14 because the lanyard may be unsafely reused.

Piper, Chang et al., and Silverberg

As to Piper and Silverberg, Applicants submit those references do not remedy the deficiencies discussed above regarding Boyer, Sharp, Kavesh et al. and McCall et al. As to Chang et al., Chang et al. is not a reference of record and the document number has not been provided to the Applicants.

Therefore, claim 1 is allowable. Claim 8, the other independent claim under consideration, is allowable for similar reasons that claim 1 is allowable. The dependent claims are allowable at least for the reasons that their respective independent claims are allowable.

Thus, Applicants submit that the §103 rejections should be withdrawn.

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New Claims

New claims 23-26 have been added, and are supported by the application as originally filed. See, for example, page 3, lines 11-26; page 7, lines 8-11; and page 8, line 26 – page 9, line 8. Also, claims 23-26 fall within least the invention and species previously elected in response to the Office Action dated April 28, 2006.

Applicants submit new claims 23-26 are also allowable. As to claims 23 and 25, “the load-supporting outer sheath and the heat shrunken elongation member in the first state are formed substantially simultaneously together as a one-piece webbing.” (Emphasis supplied). Conversely, the Sharp outer tubular sheath 14 and the inner strap 16 have are made separately and then combined together. The Boyer tubular 42 and the insert 44 are also made separately and then combined. Thus, Sharp and Boyer do not have the claimed structure of being formed substantially simultaneously together as a one-piece webbing.

Claims 24 and 26 further recite “wherein relative lengths of the load-supporting outer sheath and the heat shrunken elongation member in the first state are adjusted by heat treatment of the one-piece webbing.” Sharp and Boyer simply do not show, describe or suggest such claimed structure.

CONCLUSION

For the foregoing reasons, Applicants submit that the patent application is in condition for allowance and request a Notice of Allowance be issued.

Respectfully submitted,

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